

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

After entry of the foregoing amendment, Claims 1-17 remain pending in the present application. Claims 1-17 have been amended to address cosmetic matters of form. The Abstract has been amended to remove legally operative terminology and to delete reference characters therefrom. No new matter has been added.

By way of summary, the Official Action presents the following issues: Claims 1-2 and 16 stand rejected under 35 U.S.C. § 102 as being unpatentable over Kling (U.S. Patent 7,088,833, hereinafter "Kling"); and Claims 3-15 and 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kling in view of Yamada et al. (U.S. Patent 5,757,931, hereinafter "Yamada").

REJECTION UNDER 35 U.S.C. § 102

The Official Action has rejected Claims 1-2 and 16 under 35 U.S.C. § 102 as being unpatentable over Kling. The Official Action contends that Kling describes all of the Applicants' claimed features. Applicants respectfully traverse the rejection.

Applicants' amended Claim 1 recites, *inter alia*, an audio signal processing apparatus adapted for delivering an audio signal to a speaker system, including:

at least two drive units which are divided or separated by frequency band; and

filter means for processing the input audio signal on the basis of an inverse correction characteristic corresponding to an overall impulse response of the speaker system, the input audio signal being processed to compensate for a shift between phases of respective sound waves radiated from respective drive surfaces of the at least two drive units of the speaker system, the shift being caused by the relative physical locations of the respective drive surfaces. (emphasis added)

Kling describes a loud speaker having a phase shifter which is tuned to the phase position of a base loud speaker. For example, as shown in Figure 1, loud speakers (2, 3) are installed in a housing (1). The loud speaker (3) is preceded by a low-pass frequency filter (4). The other loud speaker (2) is preceded by an all-pass filter (5) for shifting the phase of an input signal thereto. The phase shift setting is tuned to the phase position of the loud speaker (3). In this way, loud speaker combinations of identical structural type may be combined for operation at a single frequency range.¹

Conversely, in an exemplary embodiment of the Applicants' claimed advancements, an audio signal processing apparatus adapted for delivering an audio signal to a speaker system is provided. At least two drive units are divided or separated by frequency band. A filter processes the input audio signal on the basis of **an inverse correction characteristic corresponding to an overall impulse response of the speaker system**. The input audio signal is processed to **compensate for a shift** between phases of respective sound waves radiated from respective drive surfaces of the at least two drive units of the speaker system. **The shift is caused by the relative physical locations of the respective drive surfaces.**

Kling is directed toward configuring loud speakers to radiate lower tones, such that all loud speakers radiate the low tones in like phase position for allowing smaller-size loud speakers to deliver a higher desired volume output. There is absolutely no discussion, description, or suggestion in Kling for providing a filter to process an input audio signal on the basis of an inverse correction characteristic corresponding to an overall impulse response of the speaker system as recited in Applicants' amended Claim 1 or any claim depending therefrom.

As can be appreciated, and as described in great detail in the Applicants' specification, the Applicants' claimed advancements are directed to wave front propagation

¹ See Kling at Figure 1; column 2, line 1 through column 3, line 35; column 3, lines 53-67.

delays which are caused by physical configurations of sound producing surfaces, and environmental influences.²

With respect to dependent Claim 2, Applicants note that this claim requires that drive units be coaxially disposed with respect to acoustic center.³ Figure 5 of Kling shows coplanar orientation of audio transducers.

Claim 16 recites substantially similar elements to that discussed above with reference to amended Claim 1. Accordingly, Applicants respectfully request that the rejection of Claims 1-2 and 16 under 35 U.S.C. § 102 be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

The Official Action has rejected Claims 3-15 and 17 under 35 U.S.C. § 103 as being unpatentable over Kling in view of Yamada. The Official Action contends that Kling discloses all of the Applicants' claimed features with the exception of FIR filter characteristics. However, the Official Action cites Yamada as describing these more detailed aspects of the Applicants' claims, and states that it would have been obvious, to one of ordinary skill in the art, at the time the advancements were made, to combine the cited references for arriving at the Applicants' claims. Applicants respectfully traverse the rejection.

As discussed above, Kling is deficient with regard to the claim features for which it has been asserted. Likewise, Yamada does not remedy the deficiencies discussed above, alone, or in combination with Kling. Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been presented.

² See specification at pages 1-9; Figure 3 and Figure 5.

³ For example, see Figure 3 of the Applicants' specification.

Moreover, dependent Claim 8 recites a more detailed aspect of the Applicants' claimed advancements in which the impulse response characteristic of the filter is a characteristic of an electro-acoustic transducer. In rejecting this claim, the Official Action refers to Figure 5 of Kling which illustrates a transducer. However, Applicants respectfully point out that the claim does not recite the mere presence of a transducer but, instead, a filter specifically configured to have an impulse response characteristic of an electro-acoustic transducer. Moreover, Claims 9-14 recite specific types of electro-acoustic transducers which provide an impulse response for the filter. Instead, the Official Action cites the mere existence of these devices in the cited references as somehow equivalent to these dependent claims. For example, while Figure 6 of Yamada may illustrate a headphone unit, and column 8, lines 10-17 of Yamada may describe that headphone unit, it is unclear where in the references it is described that the impulse response characteristic of a speaker or headphone system is utilized in conjunction with a filter as claimed.

Additionally, Applicants note that page 5 of the Official Action asserts Official Notice with respect to some of the more detailed aspects of the Applicants' dependent claims. With regard to this noted deficiency in light of the rejection under 35 U.S.C. § 103, it appears that the Official Action is taking Official Notice without providing a citation in support of its assertion.

If official notice is being taken, Applicants respectfully submit that Official Notice alone is not permissible as grounds for rejection in the outstanding Official Action. As stated in the MPEP at § 2144.03(A):

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21.

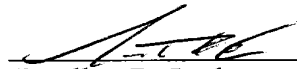
With regard to the above, Applicants respectfully submit that the features advantageously recited in Claims 10 and 11 is not "capable of instant and unquestionable demonstration as being well-known."

Accordingly, Applicants respectfully request that the rejection of Claims 3-15 and 17 under 35 U.S.C. § 103 be withdrawn.

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present application, including Claims 1-17, is patentably distinguished over the prior art, in condition for allowance, and such action is respectfully requested at an early date.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)

Scott A. McKeown
Registration No. 42,866